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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/514,411	11/15/2004	Hiroshi Yamada	1806.1003	4369

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EXAMINER	
JOHNSON, CONNIE P	

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1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/514,411	YAMADA ET AL.	
	Examiner	Art Unit	
	CONNIE P. JOHNSON	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 9/26/2008 have been entered and fully considered.

2. Claims 1-8 and 10-15 are presented.

3. Claim 1 is amended.

4. Claim 15 is new.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 8 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al., U.S. Patent No. 5,798,202 in view of Sasashita et al., U.S. Patent No. 5,916,732 and further in view of Asahi Glass Company.

Cushner teaches a laser engravable printing plate comprising an elastomeric layer. The elastomeric layer comprises a thermosetting resin (col. 7, line 17). The elastomeric layer also comprises a monomer with an ethylenically unsaturated group (col. 6, lines 38-39). The composition comprises a styrene-butadiene copolymer resin as in claim 15 (col. 4, line 24). The elastomeric layer also comprises inorganic porous particles, such as silica (col. 5, line 10). Cushner does not teach specific silica particles nor characteristics of the silica particles, such as pore volume and pore diameter.

However, Asahi Glass Company teaches that spherical silica particles, such as SUNSPHERE H series particles, are well known and conventionally used as resin fillers. The SUNSPHERE H series particles have the following properties: specific surface area of 700-800m^2/g, pore volume of 1.0-2.0 ml/g, pore diameter of 5-30nm and an oil absorption capacity of 150-400ml/100g. It would have been obvious to one of ordinary skill in the art to use the SUNSPHERE particles in the composition of Cushner because Asahi Glass teaches that the particles are conventionally used as a resin filler. Although Asahi Glass teaches that the mean particle diameter of the silica particles is 3-12μm, Cushner teaches that features, such as tensile strength, abrasion and tear resistance, hardness and toughness, are enhanced with decreasing particle size (col. 5, lines 8-29). Therefore, the number average particle diameter is a result effective variable., "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)" (see MPEP 2144.05). Therefore, it would have been obvious to one of ordinary skill in the art to use the SUNSPHERE silica particles with an average particle diameter of 200-500Å (0.02-0.05μm) or even smaller to optimize the number average particle diameter and enhance the tensile strength, abrasion and tear resistance, hardness and toughness, are enhanced with decreasing particle size (col. 5, lines 8-29). Cushner also teaches that the elastomeric layer comprises a photoinitiator (col. 5, line 48). The elastomeric layer may also have a shore hardness of 32.3 (col. 15, example 1).

Cushner teaches applying the elastomeric material to a support (col. 13, lines 1-3). In column 14, lines 44-64 Cushner teaches a method of making the printing plate comprising mounting the elastomeric material on a drum and laser exposing wherein a relief pattern is formed. The elastomeric material may be exposed to laser light and heated (col. 13, lines 26-30). In column 5, lines 30-55, Cushner teaches photochemical reinforcement of the elastomer layer by using photohardening materials in the elastomer layer and exposing it with actinic radiation. Cushner does not teach resin (a) has a molecular weight of 5,000 to 300,000 with a softening temperature of 500^{0}C or less nor that the composition has an organic methacrylate compound.

However, Sasashita teaches a printing plate comprising a photo-polymerizing unsaturated compound having ethylenic double bonds in the molecule, a photopolymerization initiator and an elastomer resin, such as isoprene-butadiene (col. 3, line 52). The isoprene-butadiene is a liquid resin with a molecular weight of 40,000g/mol or more (col. 3, lines 35-60). Sasashita teaches dissolving the isoprene-butadiene rubber in a melt blend wherein the solvent is water and alcohol. Therefore, the isoprene-butadiene is a solvent-soluble resin (col. 8, lines 23-27). The ethylenically unsaturated compound comprises methacrylates (col. 6, lines 56-67). As exemplified in example 8, the components of the polymerizable composition are: 32pbw nitrile-butadiene and 2 pbw of glycidyl methacrylate. The combination of glycidyl methacrylate and the nitrile-butadiene resin represents a ratio of 70:100 based on 100pbw of the resin as in instant claim 15. Sasashita teaches dissolving the resin in ethanol/water at a temperature of 90^{0}C (example 1). Dissolving the resin in ethanol/water at a temperature

of 90^{0}C is representative of a resin with a softening temperature of less than 500^{0}C wherein the resin is solvent-soluble. It would have been obvious to one of ordinary skill in the art that the isoprene-butadiene copolymer of Cushner would have a molecular weight of 10,000 to 100,000 because Sasashita teaches using isoprene-butadiene copolymers with conventional molecular weight of 40,000 or more in flexographic printing plates to satisfy water-developability and compatibility with the printing ink (col. 3, lines 61-65). Further, it would have been obvious to one of ordinary skill in the art to use specific organic compounds, such as methacrylates in the printing plate of Cushner to improve ink compatibility and image reproducibility as taught by Sasashita (col. 7, lines 20-33).

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al., U.S. Patent No. 5,798,202 in view of Sasashita et al., U.S. Patent No. 5,916,732 in view of Asahi Glass Company in view of Watanabe et al., U.S. Patent Publication No. 2002/0045126 A1 and further in view of Mohr et al., U.S. Patent no. 5,851,649.

Cushner teaches a laser engravable printing plate comprising an elastomeric layer. The elastomeric layer comprises a thermosetting resin (col. 7, line 17). The elastomeric layer also comprises a monomer with an ethylenically unsaturated group (col. 6, lines 38-39). The elastomeric layer also comprises inorganic porous particles, such as silica (col. 5, line 10). Spherical silica particles such as SUNSPHERE H series particles, are conventionally used as resin fillers (see Asahi Glass Company website).

Cushner does not specifically teach polyhedral particles nor that the spherical particles have a sphericity of 0.5 to 1.0.

However, Watanabe teaches a photocurable composition comprising spherical silica particles. Watanabe also teaches that the photocured resin composition comprises an organic compound, photoinitiator and an ethylenically unsaturated polymer (page 10, [0124]). The spherical silica particles have a sphericity of 0.95 or more (page 5, [0056]). The spherical silica particles show excellent mechanical characteristics and heat resistance (page 5, [0052]). Therefore, it would have been obvious to one of ordinary skill in the art to use spherical silica particles having a sphericity of 0.95 or more in the composition of Cushner to improve heat resistance of the photocured composition.

Further, Mohr teaches inorganic porous particles, such as polyhedral crystals with a pore size distribution of smallest (10%) to largest (90%) sphere in the polyhedral particle (D_{10}/D_{90}) is no more than 3 (abstract). According to figure 3 in the Mohr reference, the pore diameter of the particle is approximately 5-10nm (0.005-0.010μm). It would have been obvious to one of ordinary skill in the art that the polyhedral particles having a D_{10}/D_{90} ratio of 3 would be expected to have a D_3/D_4 ratio of 1 to 3 because the values are based on pore volume distribution and diameter.

Response to Arguments

8. Applicant's arguments, filed 9/26/2008, with respect to the rejection(s) of claim(s) 1-5, 8 and 10-14 under 103(a) and claims 5-7 under 103(a) have been fully considered

and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

9. The declaration under 37 CFR 1.132 filed 10/17/2007 is not sufficient to overcome the rejection of claim 1 based upon the 103(a) rejection over Cushner in view of Sasashita. Examiner acknowledges amendment to the specification to show that the average particle diameter values in Table A are in micrometers instead of millimeters. Applicant uses SYLOSPHERE C-1504 as the porous particles on page 105 of the specification. The same particles are used for all of the examples in the specification. However, applicant has not claimed a specific type of inorganic porous particle. Applicant only claims inorganic particles with specific characteristics. Claim 1 recites, "(c) 1 to 100 parts by weight, relative to 100 parts by weight of said resin (a), of inorganic porous particles having an average pore diameter of from 1nm to 1,000nm, a pore volume of 0.1ml/g to 10ml/g and a number average particle diameter of not more than 10μm." Cushner in view of Asahi Glass meets the limitations of the inorganic porous particles as claimed. The SUNSPHERE particles in Asahi Glass are inorganic porous particles with the same characteristics as claimed. Applicant has added new claim 15 to further narrow the characteristics of the composition. However, the Asahi Glass reference also reads on the inorganic porous particles in new claim 15. Therefore, the declaration is not persuasive.

10. In the declaration 1.132, applicant argues that the particle diameter is independent of the other features of the inorganic porous particles as exemplified in Table A. However, the office action has not cited a correlation between particle size,

pore volume and pore diameter. This part of the rejection has been removed. The obviousness to use the SUNSPHERE particles in the claimed particle size range is shown by Cushner and Asahi Glass Company. The claimed average particle diameter is less than 10μm. Cushner teaches a particle size of 0.02-0.05μm, while Asahi Glass Company teaches silica particles in the range of 3μm-20μm. Although both references teach particles in the claimed range, Cushner points out that by decreasing the particle size, the features such as tensile strength, abrasion and tear resistance, hardness and toughness, are enhanced (col. 5, lines 8-29). This obviousness statement does not mention any relationship to the other inorganic porous particle characteristics as claimed, only enhancements to composition features by using smaller inorganic particles.

11. Applicant argues that the AGC reference is an online catalog that was printed on January 4, 2008 wherein the website has a copyright date of 1996 to 2007. Further, that the present invention has a 2002 priority date and that examiner has not shown that the SUNSPHERE particles were available since 1996.

Applicant is directed to the disclosure from the website www.wayback.com wherein the Asahi Glass website shows the SUNSPHERE inorganic porous particles, with the claimed features as early as 1999. Therefore, Asahi Glass was in possession of the SUNSPHERE material prior to applicants' priority date.

12. Applicant argues that absent hindsight, there would be no reason to look to the Asahi Glass website for the SUNSPHERE particles.

Examiner disagrees. Applicant has not claimed any specific type of inorganic porous particles. Further, Cushner teaches inorganic porous particles, specifically silica particles, as reinforcing agents in column 5 of the reference. Cushner points to specific features of the inorganic porous particles, such as particle size. Therefore, one of ordinary skill would be directed to the SUNSPHERE particles because the SUNSPHERE particles are conventional in coating printing paper. Further, applicant specifically points to SUNSPHERE, SYLOSPHERE and other inorganic silica particles for the laser engravable composition. Cushner teaches silica particles in a finite list of inorganic porous particles as resin fillers while Asahi Glass teaches inorganic silica particles as resin fillers. Therefore, the references are not combined based on hindsight, but by appropriate similarities in the structure of the composition.

13. Applicant argues that SUNSHPERE particles are characterized on the Asahi Glass website as "smooth to touch" and "beautiful" and that these are not properties that one would look for when making a printing element. Further, that the website discloses the particles are used in cosmetics, a catalyst support film, a matting agent for paint and coated printing papers.

Although the SUNSPHERE website points to these features, this is irrelelvant as to where the particles can be used.

Applicant is also directed to the SYLOSPHERE website, which cites the same properties for SYLOSPHERE particles. The SYLOSPHERE particles are specifically used in the instant specification. The website for Fuji Silysia Chemical specifically states that spherical properties of SYLOSPHERE give a "smooth touch" and have utilization in

blocking prevention in plastics, paper/ink receptiveness, matting agents in paints and cosmetics/perfume as evidenced by Fuji-Silysia Chemical. The SYLOSPHERE particles have the same applications as SUNSPHERE particles and applicant used the SYLOSPHERE particles in the instant invention. Therefore, it is obvious that although the SUNSPHERE and SYLOSPHERE particles have features associated with cosmetics, the particles also have applications in coating printed materials. Laser engravable printing plates are printed materials.

14. Applicant argues that taken as a whole, the uses of the particles in the Asahi Glass reference are different from a printing element.

Asahi Glass teaches the SUNSPHERE silica particles are used in coated printing papers. Cushner teaches a laser engravable printing element. Cushner also teaches silica particles as a reinforcing agent in combination with an elastomeric resin. Therefore, one of ordinary skill would be directed to use the silica particles of Asahi Glass in the printing element of Cushner.

15. Applicant argues that Cushner teaches away from the SUNSPHERE particles because Cushner teaches that not all combinations of resins and reinforcing agents are effective for producing a laser engravable printing element.

Cushner teaches silica particles are used in a printing composition as a reinforcing agent. Therefore, one of ordinary skill would be directed to the SUNSPHERE particles because Asahi Glass teaches the SUNSPHERE particles as a resin filler in coated printing elements. A resin filler fuctions as a reinforcing agent because the resin

filler reinforces the resin for mechanical strength. Cushner teaches the same (col. 5, lines 18-29).

16. Applicant argues that silica is described as a reinforcing agent and that carbon black is the only reinforcing agent used in the examples.

Although not exemplified in the examples, Cushner teaches silica particles as a reinforcing agent in combination with an elastomeric resin in a laser engravable printing element. Therefore, Cushner meets the limitations of the claimed invention.

17. Applicant argues there is no motivation to combine the silica particles of AGC website with a resin which is not described in Cushner, specifically the resin in Hiller or Mori.

The rejection over Hiller and Mori has been withdrawn. Therefore, the argument is moot.

18. Applicant argues that porous particles are not suitable as reinforcing agents because porous particles are weaker than non-porous particles.

Examiner does not agree. Cushner teaches silica particles are suitable as a resinforcing agent in combination with an elastomeric resin. Cushner also teaches the resin may comprise styrene-butadiene as claimed. Therefore, porous particles are suitable reinforcing agents for an elastomeric resin.

19. Applicant argues that a skilled person would have been directed to non-porous silica particles instead of SUNSPHERE porous silica particles as a reinforcing agent for mechanically reinforcing the printing element of Cushner.

SUNSPHERE silica particles are suitable as a resin filler for elastomeric resins in printing elements as disclosed in Asahi Glass. Resin fillers provide reinforcement to the resin composition. Therefore, the SUNSPHERE particles are capable of providing mechanical reinforcement to the elastomeric composition.

20. Applicant argues that Cushner is not combinable with Mori because Mori teaches a photolithographic printing plate while Cushner teaches a laser engravable printing plate.

New claim 15 further limits the resin and organic compound, therefore the rejection over Mori has been withdrawn.

21. Applicant argues that Cushner does not teach a multilayered composition as in claim 10.

Applicant is directed to column 2, lines 54-59 wherein Cushner teaches that the elastomeric layer is formed by building up multiple layers of the same composition. Therefore, Cushner does teach a multilayered composition as claimed. The outermost layer of the multilayered structure is representative of the printing element layer.

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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